

What's Happening  
@ EERE

# Amped Up!

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U.S. DEPARTMENT OF  
**ENERGY**

Energy Efficiency &  
Renewable Energy



**Accelerating Clean Energy  
through an Innovation Ecosystem**

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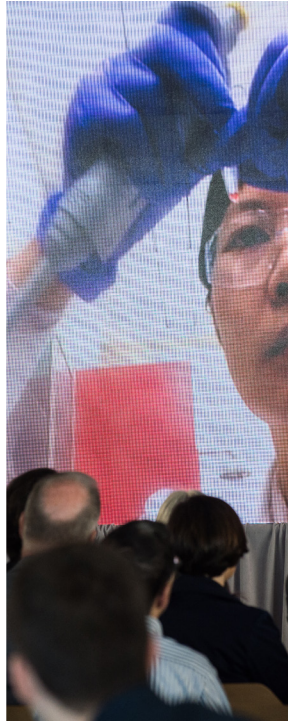
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A Message from David



In my new capacity as acting assistant secretary, it is my pleasure to kick off this latest issue of *Amped Up! Magazine*.

I am humbled by the opportunity to lead this tremendous organization as we continue to support a clean energy revolution that is strengthening our economy and tackling some of the world’s most urgent challenges. As we move forward, my top priorities are accelerating the pace of innovation we have seen over the past several years, ensuring the long term sustainability of our progress across all of our programs, and supporting the people who make the Energy Department’s Office of Energy Efficiency and Renewable Energy (EERE) great.

This issue includes some of my thoughts on how we’re going to deliver on these three priorities. It also includes a recap of the tremendous progress EERE made during the tenure of Dave Danielson’s leadership. Dave’s vision around innovation and manufacturing as cornerstones of a clean energy economy and his support for EERE’s R&D efforts were critical to our success. His passion for our work was clear and helped drive support for all that we do.

I share that passion and see it every day in all of our staff. Our team has an incredible story to tell as we continue to see record growth and progress on cost-competitiveness across the full range of clean energy technologies. I hope this issue of *Amped Up!* helps highlight to our partners and stakeholders just how far we have come as a country in innovating how we make and use energy - and how instrumental EERE has been in turning our vision of a clean energy revolution into reality.

This issue focuses on our Tech-to-Market program and its work in building and strengthening what we call our country’s “innovation ecosystem” – an environment to support top clean energy innovators and entrepreneurs so they can successfully develop and commercialize game-changing new technologies. Building this network requires the full participation of partners from every sector of our economy, including universities, industry, and our world class national laboratories.

You will get to hear from Dr. Martin Keller, the director of the National Renewable Energy Laboratory, who discusses the groundbreaking R&D underway at the laboratory campus in Golden, Colorado. You’ll also come across three very successful summits we held over the course of a very busy May, highlighting the successes of our Lab Impact, Clean Energy Manufacturing, and Better Buildings initiatives.

These initiatives represent just a portion of our work to build the infrastructure that can accelerate the growth of clean energy in the United States—and the jobs, clean air, and stronger economy that will come with that growth. I look forward to working with all of our team to make this year our most impactful yet. Enjoy this edition of *Amped Up! Magazine*.

David

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HELLO  
my name is

David Friedman

## Friedman Sets Sights on Accelerating America's Transition to a Clean Energy Economy

David Friedman has recently assumed the top leadership position at EERE, less than one year after joining as Principal Deputy Assistant Secretary. In his new role, he is eager to continue the Energy Department's extraordinary progress in accelerating the nation's transition to a clean energy economy.

Friedman shifts from overseeing EERE's day-to-day operations to a broader portfolio spanning five major areas: Energy Efficiency, Renewable Power, Sustainable Transportation, Strategic Programs, and Operations. The new mantle also gives him the opportunity to expand the ongoing [clean energy revolution](#) at a truly historic time. At last year's Paris climate change conference, President Obama joined 19 other world leaders in launching [Mission Innovation](#), an effort to double investments in clean energy research and development over the next five years.

In June, Friedman was on hand when Energy Secretary Ernest Moniz hosted energy leaders from 23 countries and the European Union at the seventh [Clean Energy Ministerial](#) in San Francisco. The Clean Energy Ministerial followed the pivotal U.N. Conference of the Parties (COP21) climate change talks last year in Paris. The meeting also marked the inaugural Mission Innovation Ministerial.

Besides playing key roles in accelerating the clean energy revolution and tackling the global challenge of

climate change, Friedman will steer EERE investments toward innovative technologies to help secure the president's goal of doubling American energy productivity by 2030. He will direct growing EERE efforts to promote successful partnerships among the nation's world-class laboratories and industry to spawn new and innovative collaborations to drive America's clean energy economy forward. In this role, he will also support the president's vision of bolstering U.S. manufacturing competitiveness. Advanced manufacturing gains can pave the way for superior energy savings and new job opportunities for millions of Americans across the country.

"It's a unique time that calls for a mix of finishing strong to cap off an unprecedented eight years of clean energy progress, and accelerating progress so the next administration can hit the ground running," Friedman said in an interview with the *Amped Up!* team.

The new EERE chief says his management style will stress a spirit of togetherness that is crucial to "deepening and broadening" accomplishments across the EERE complex. "We face many challenges and opportunities ahead and our best success comes when we work together for the betterment of EERE and the nation," said Friedman. "In a world where the boundaries between electricity, vehicles, and buildings are fading, we have to break down silos and find ways to work across programs, sectors and industries to create solutions we never dreamed of a few years ago," he added.

Looking ahead, Friedman says his tenure will focus on supporting the great work of EERE and the people who get it done. Said Friedman: "It's about keeping up, even picking up the pace and creating a level of urgency about

our mission and the enormous challenges and opportunities ahead."

Friedman, who joined EERE just last July, brings an impressive portfolio to the post: he has been an influential sustainable transportation and clean energy technologies expert for more than two decades. Before arriving at EERE, Friedman served as both deputy and acting administrator of the National Highway Traffic Safety Administration (NHTSA), whose mission is to save lives, prevent injuries, and reduce economic costs due to road traffic crashes through education, research, safety standards, and enforcement activity.

*"In a world that's getting serious about this challenge at a level we've never seen before, we must dig down even deeper and think strategically about making every dollar count."*

– David Friedman

Prior to joining the Obama administration, Friedman worked for 12 years at the Union of Concerned Scientists where he wore several hats: senior engineer, research director, and deputy director of the clean vehicles program. In 2007, Friedman's efforts on fuel economy helped lead to the first legislative increase in NHTSA's Corporate Average Fuel Economy standards since their creation in 1975. He also served on several National Academies committees, and worked for the University of California, Davis' Institute for Transportation Studies, in its Fuel Cell Vehicle

Modeling Program.

Friedman recognizes the challenges he faces in the coming days and months and seems keen on taking them head on. Internally, he wants to build an even more efficient and effective EERE, relying on insights from his regulatory, policy and deployment experience and his belief that the success of EERE's staff is critical to the success of EERE as a whole.

One thing that strikes home with Friedman about the EERE culture is that "everyone here gets the mission." That's because innovation holds the key to solving both our pressing global problems and building a more prosperous America powered by clean energy.

Said Friedman: "In a world that's getting serious about climate and energy challenges at a level we've never seen before, we must dig down even deeper and think strategically about making every dollar count." In that vein, Friedman has "high expectations" of himself and across EERE for the quality and pace of its work.



# Danielson Leaves Lasting Impression on EERE

Dave Danielson stepped down in May after an enormously productive four-year run as assistant secretary for EERE. From modernizing the electric grid to boosting America’s competitiveness in clean energy manufacturing, Danielson led the charge on a number of cross-cutting initiatives that are helping create American jobs, save taxpayers money, and protect the planet.

“I was told by a friend that I may have the world record duration for an assistant secretary at four years,” joked Danielson. “You can get a lot done in four years, and we did together.”



Danielson, who will return to his home state of California to spend time with his family, made it a priority to break down silos throughout EERE. He streamlined processes across EERE

technology offices to collectively focus their research and development efforts with the national labs.

“Change is hard,” said Danielson. “Going from 11 ways of doing business across EERE to one way took a lot effort.”

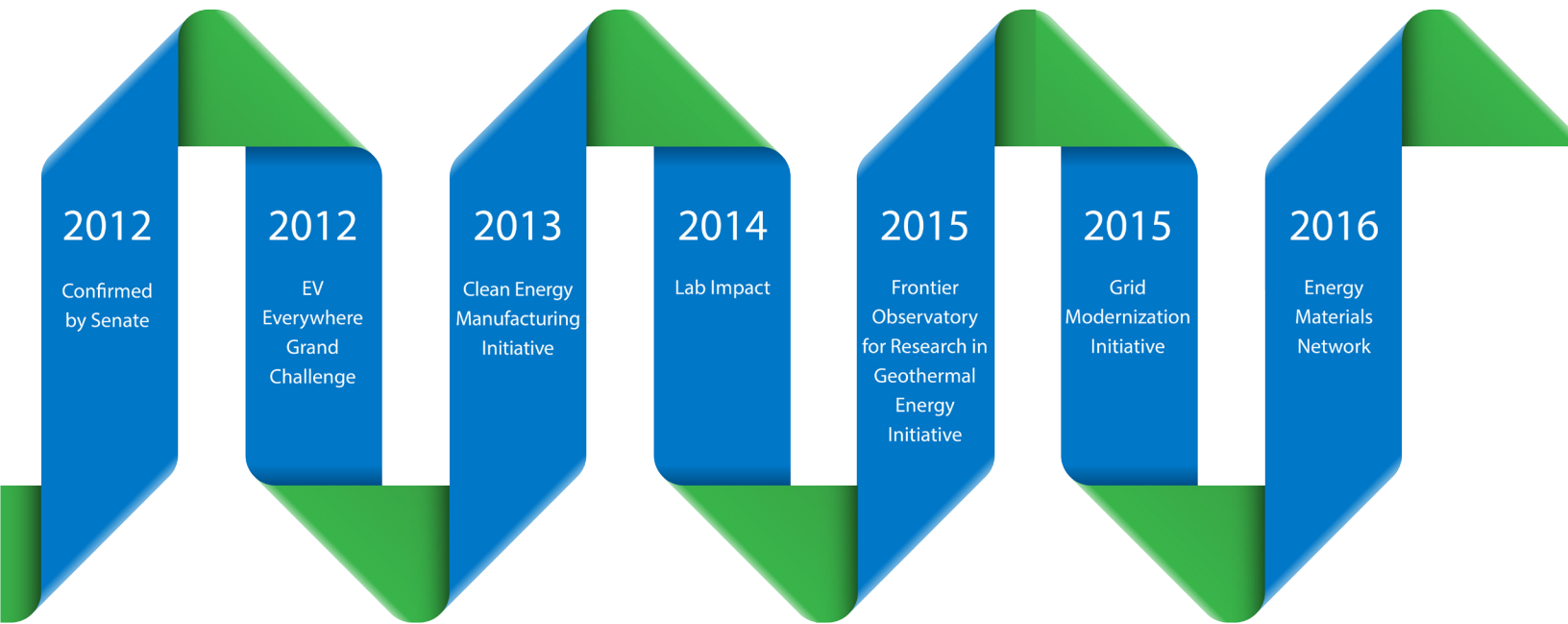
That effort has led to a number of department-wide programs, including the [Clean Energy Manufacturing Initiative](#) (CEMI)—a major focal point during Danielson’s tenure that strives to boost U.S. competitiveness in the manufacturing of clean energy technologies. Through CEMI and in support of President Obama’s National Network for Manufacturing Innovation, EERE launched three new innovation institutes in the areas of power electronics, advanced composites, and smart manufacturing; set up two high-impact manufacturing demonstration facilities with the national labs that focus on 3-D printing and high-performance computing; and most recently launched the [Energy Materials Network](#), which aims to rapidly accelerate the development of new materials.

“We’ve actually invested more than \$1 billion in clean energy manufacturing innovation over the last four years, which is amazing,” said Danielson. “I think we are in a position to really make sure that we lead in this area.”

Danielson also led the charge in launching two other major cross-cutting efforts—the Grid Modernization Initiative (GMI) and the [National Laboratory Impact Initiative](#) (Lab Impact). GMI is a department-wide effort of more than 80 projects to update the century-old U.S. power grid to be more responsive to distributed loads of renewable power. Lab Impact helps develop the next generation of clean energy entrepreneurs and creates opportunities for the national labs to work with public and private industries to accelerate the deployment of innovative technologies into the marketplace.

“I think EERE is just getting started,” said Danielson. “They are going to continue to strengthen as an organization, and it’s truly been the honor of my life to lead EERE these last four years.”

## Notable achievements and select initiatives launched during Danielson’s tenure.



# Q&A: New NREL Director Martin Keller’s Crystal Ball

*Dr. Martin Keller, who took the reins as the laboratory director of the National Renewable Energy Laboratory (NREL) late last year, has a clear vision of the role his lab and its researchers will play in helping the nation realize its clean energy goals.*

*Keller, who joined NREL from Oak Ridge National Laboratory, where he served as associate laboratory director for Energy and Environmental Sciences, outlines his vision and priorities including enhancing the lab’s science culture, increasing lab-directed research and development, and expanding its scientific collaborations across the spectrum.*

## What is your vision for NREL as its new director?

We are only in the early stages of a global energy transformation, and innovation is essential for continued progress. My vision is for NREL to further solidify our position as the premier research organization in the world focused on renewables and energy efficiency.

NREL’s research is informed by our globally recognized expertise in analysis and decision science. Combined with our years of experience in deployment and technology application, we provide market insights and identify knowledge gaps. From that, we focus our foundational science and research in the areas most ripe for technological breakthroughs. The integration of these unique capabilities allows for NREL’s continued innovation.

## What are your top priorities for this year?

Several months ago, I identified a few priorities for my first year. One is to achieve stronger alignment between our research and EERE’s highest priorities. My goal is to deepen our relationships with the various program offices and continue to work together to drive success on cross-cutting initiatives.

Another of my highest priorities is to enhance the science culture of the laboratory by promoting scientific publications, increasing laboratory-directed research and development, integrating our core capabilities, and expanding our scientific collaborations across the spectrum of potential partners. I want to ensure that our researchers are able to make discoveries that will change the face of renewable energy.

## How important is the partnership between EERE and NREL?

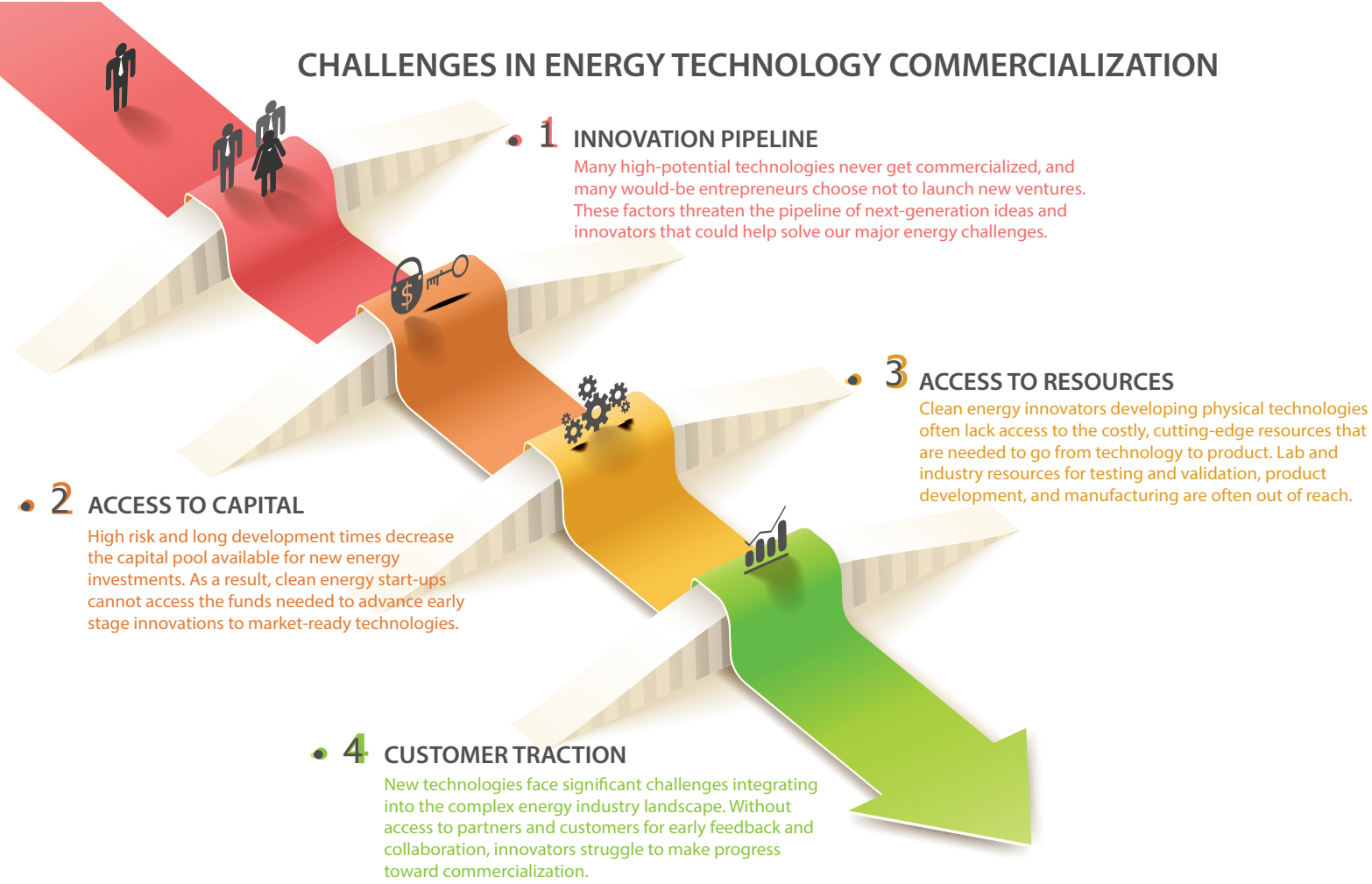
A strong partnership between NREL and EERE is critical, and we can achieve greatness only if we are working together. From fundamental science to tech-to-market, together we can forge a path that helps the nation reach its clean energy goals. The Energy Department’s Golden Field Office is our partner in achieving our mission, and I am committed to strong collaboration.

As we move toward implementation of the COP 21 objectives and work to deliver mission innovation programming, EERE and NREL will be the entities driving success. Working together, we can make the transformation to a renewable energy future happen.



Dr. Martin Keller - Director, NREL  
(Photo by Dennis Schroeder/NREL)

# CHALLENGES IN ENERGY TECHNOLOGY COMMERCIALIZATION



## Building an Innovation Ecosystem

Innovation is at the core of many of EERE’s strategic investments. But getting new clean energy ideas into the marketplace can be a daunting task. Investors are hesitant to finance projects without market buy-in, the cost of resources needed over longer development cycles can exceed available capital, and the market has little incentive to adopt disruptive innovations.

That’s why EERE’s [Technology-to-Market](#) program has been carefully studying and strengthening a nationwide innovation ecosystem to give game-changing clean energy technologies a fighting chance at success.

“Our goal is to build a better clean energy innovation ecosystem in the United States, so that the best innovations have the best chance of success,” said Johanna Wolfson, director of the Tech-to-Market program.

So what is an innovation ecosystem? “It’s the underlying fabric of the commercialization process,” said Jennifer Garson, the program lead within the Tech-to-Market team.

That fabric forms the landscape that clean energy innovations traverse on their paths to market. Since 2010, Tech-to-Market has been strategically weaving a web of services together nationwide by forging partnerships throughout the development cycle.

“It’s all about building those relationships,” said Garson. “Just because [Argonne National Laboratory](#) (located in Chicago) has fantastic battery research, doesn’t mean that a great battery startup in Boston or San Francisco couldn’t leverage that resource to help as they grow.”

Through significant stakeholder

engagement and careful coordination, Tech-to-Market has launched a number of programs to bolster the energy innovation ecosystem. These programs address barriers in early stage development such as cultivating entrepreneurial talent, accessing funding, accessing lab resources and customers, and connecting to industry.

The [Cleantech University Prize](#), for example, helps launch collegiate innovators into the clean energy field. Since 2011, participating teams in EERE-supported business plan competitions have raised more than \$130 million in follow-on funding and created more than 120 jobs.

Entrepreneurs can also take advantage of programs such as [Cyclotron Road](#) and [Chain Reaction Innovations](#). In collaboration with EERE’s [Advanced Manufacturing Office](#), these initiatives

spin innovators into the Energy Department’s national laboratories to help develop their products. Tech-to-Market also supports national lab researchers through the National Laboratory Impact Initiative’s [Lab-Corps](#) pilot, which coaches researchers on customer discovery to better inform the commercialization of their technologies.

“With each program, we’re trying to address specific barriers that stand in the way of bringing innovative technologies to market,” said Wolfson.

Tech-to-Market also runs programs to provide services and funding for technology developers who have launched new ventures and need help bridging the gap to private investment. Through the National Incubator Initiative for Clean Energy, Tech-to-Market funds incubator organizations that form the nationwide support network for clean energy entrepreneurs. So far, more than 500 startups have been supported, and portfolio companies supported by incubators funded through the network have generated nearly \$100 million in revenue with more than \$162 million in follow-on funding.

“No startup exists in a vacuum. It’s not the way we commercialize clean energy technologies,” said Garson. “What we are trying to do is catalyze relationships between people who might not even know they should be working together.”

Startups and the national labs are a perfect example. For years, small businesses lacked the resources and knowledge to harness these world-class capabilities. Now, thanks to the Lab Impact Initiative’s [Small Business Vouchers program](#), businesses can

apply for funding to collaborate with the labs to help solve their most pressing needs. In addition, startups can also explore opportunities through the [Small Business Innovation Research](#) program to obtain grant funding for innovative research that could lead to commercialization.

By identifying the barriers to technology commercialization and designing programs to address those barriers,

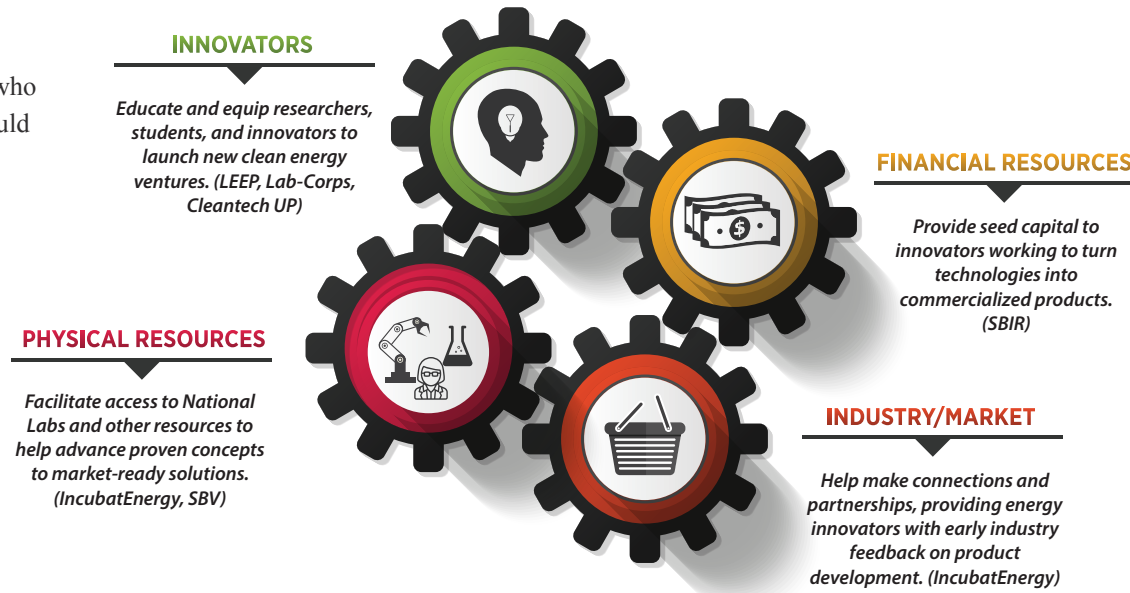
Tech-to-Market continues to use strategic investments to better understand and build a stronger innovation ecosystem.

“At the end of the day, this is all about supporting the transition of clean energy technologies so that there can be real market impact,” said Wolfson. “Without attention to the commercial transition, all of the earlier-stage research that EERE supports cannot be fully leveraged.”

### TECHNOLOGY-TO-MARKET PROGRAMS:

- Cleantech University Prize
- Lab-Embedded Entrepreneurship Programs
  - Chain Reaction Innovations (at Argonne National Laboratory)
  - Cyclotron Road (at Lawrence Berkeley National Laboratory)
- National Incubator Initiative for Clean Energy
- National Laboratory Impact Initiative
  - Lab-Corps Program
  - Small Business Vouchers Program
- Small Business Innovation Research and Small Business Technology Transfer Programs

### INNOVATION ECOSYSTEM: TECHNOLOGY-TO-MARKET SOLUTIONS



## Lab Impact Summit

EERE hosted the [National Lab Impact Summit](#) on May 4 at the [National Renewable Energy Laboratory](#) in Golden, Colorado. The event brought together nearly 300 executives, government leaders, and technology researchers to learn firsthand about the labs' world-class capabilities and helped foster new relationships for clean energy innovation. The National Laboratory Impact Initiative helps American businesses work with the labs to address technology barriers and achieve bottom-line results in clean energy.



### TIR ANNOUNCEMENT

EERE announced \$2.3 million in second-round funding for the [Technologist in Residence](#) (TIR) program during the Lab Impact Summit. TIR fosters long-term, lab-industry partnerships by pairing senior lab technical staff with counterparts from large U.S. manufacturing companies, such as Proctor & Gamble, Hewlett Packard, and Cummins—to conduct collaborative research. The solicitation will support at least five new technologist pairs and will be open and evaluated on a rolling basis. TIR is run by the [Clean Energy Manufacturing Initiative](#), which aims to strengthen American competitiveness in the production of clean energy products and boost U.S. manufacturing by increasing energy productivity.



Images: (Top right) Oak Ridge National Laboratory's AMIE 3D printed vehicle; (left) Attendees check out the Idaho National Lab exhibit; (right) Pacific Northwest National Laboratory officials display aquatic research salmon; (bottom) inside 3D printed AMIE house. - Photos by Dennis Schroeder/NREL



Members for the second cohort of EERE's Lab-Corps pilot. Photo by NREL

## Lab-Corps Team Gets Lessons from Experts to Hasten Hunt for New Nylon Component

A trio of researchers from the Energy Department's [National Renewable Energy Laboratory](#) (NREL) that took part in Lab-Corps—a pilot for lab researchers working to transition discoveries to the marketplace—left the 7-week boot camp with fresh ideas about how to bring their “products” to the private sector.

The Biolyst Renewables team now has a different perspective on scale-up issues tied to bringing new technologies to market, as well as how to better compete with petroleum products in an environmentally sustainable manner. The team was part of the second cohort of EERE's [Lab-Corps pilot](#), which pairs select researchers with industry mentors and connects them to companies in fields related to their technologies.

The Lab-Corps pilot is designed to empower lab researchers and scientists with the tools, resources, and relationships necessary to commercialize their innovations. Some of the fundamental skills taught in Lab-Corps include

customer discovery, the merits of launching a startup versus licensing to a large company, and the necessary steps to technology commercialization.

“The boot camp really changed how we can approach the questions we ask as researchers and has given us a new way to view what comes next,” said Chris Johnson, a molecular biologist with the Biolyst Renewables team that has developed technologies to renewably produce adipic acid (a primary component of nylon).

Johnson and the rest of the team—materials scientist Steve Christensen and engineer Derek Vardon—spent long days at the boot camp attending classes and meeting with representatives of both large and small companies to learn first-hand about challenges they faced in moving their ideas to market. “It was an eye-opening experience getting this kind of exposure to industry and to companies trying to address barriers to commercialization,” Vardon said.

The team sees potential applications for its bio-based technologies in the automotive, textiles, and consumer product sectors. The production of adipic acid from petroleum releases significant quantities of nitrous oxide. Team Biolyst's method overcomes this issue by producing adipic acid renewably from biomass at low cost and eliminating the release of nitrous oxide, resulting in one-tenth the greenhouse gas footprint.

The Biolyst Renewables team is one of 14 to graduate from the most recent Lab-Corps round of training at NREL in Golden, Colorado. The aim of EERE's Lab-Corps pilot, part of the Lab Impact Initiative effort launched in 2013, is to accelerate the deployment of lab-developed technologies into the market and to foster a more commercially aware and entrepreneurial culture at the Energy Department's labs.

A third cohort will kick off July 12–15 at NREL.

# Cleantech UP National Championship

The Cleantech University Prize helps launch collegiate innovators into the clean energy field. Eight regional competitions were held starting in February, with the top three teams from each regional earning an invitation to the national tournament in Denver, Colorado. At nationals, 20 teams competed against each other from which nine remained, with Heila Technologies emerging as the national champion. Heila developed a universal control hub that automatically monitors and manages microgrids—such as those that are powered by solar panels, wind turbines, and gas generators—at places like company campuses, military bases, and rural villages, for optimal performance. They won \$50,000 and a \$50,000 voucher to access the facilities and capabilities of the Energy Department national labs.



### 2<sup>nd</sup> Place- \$30,000

**XStream Trucking-** Patented GapGorilla increases the fuel efficiency of the \$700 billion long-haul trucking industry by streamlining the gap between the cab and trailer. (Caltech FLoW)

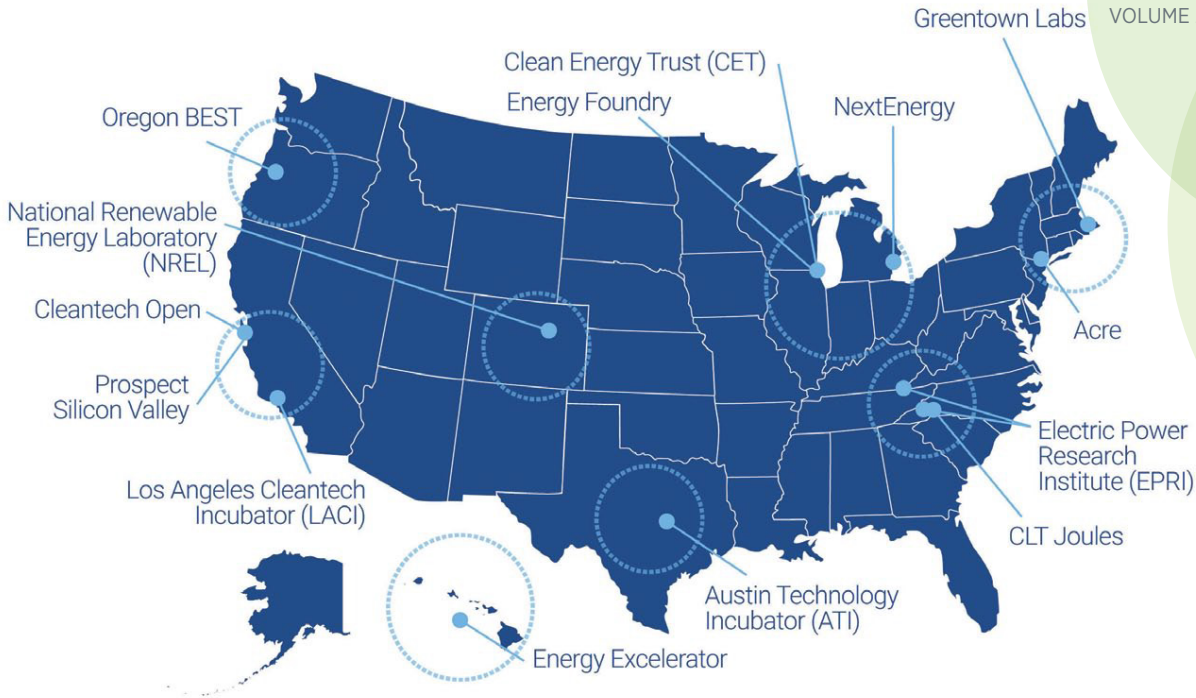
### 1<sup>st</sup> Place- \$50,000

**Heila Technologies** - Developed software and hardware that translates the different languages used in microgrid systems into a single platform. The Heila IQ hub can sense changes in the microgrid system across all connected components and help the system to react to shifts. (MIT Clean Energy Prize)



### 3<sup>rd</sup> Place- \$20,000

**NovoMoto-** A Sustainable Social Enterprise that aims to provide clean, renewable, and sustainable electricity to communities in the Democratic Republic of Congo and other sub-Saharan African countries in the future. (Clean Energy Trust Challenge)



## National Clean Energy Incubators Spawn New Commercialization Centers

The National Incubator Initiative for Clean Energy (NIICE) is yielding exciting results in the clean energy solutions space by enabling U.S. companies with new clean energy technologies and business models to enter the marketplace or reach commercial readiness faster than before.

NIICE has established a national network of more than 19 different incubators and supporting organizations. Known as the Incubatenergy Network, its members are working together to share best practices and build connections to support entrepreneurs that are driving innovation in clean energy sectors across the nation.

The initiative also funded several regional incubators that have attracted leading industry partners to help companies scale up, develop markets, and deploy energy innovations at an expedited rate. These incubators include the NextEnergy Center in Detroit, the Clean Energy Trust in Chicago, the Austin Technology Incubator in Texas, and the Los Angeles Cleantech Incubator (LACI).

A new white paper from the Incubatenergy Network, *Clean Energy Incubators as Critical Commercialization Centers*, shows that this growing network is providing a variety of valuable services to startups in the clean energy field. These services include access to laboratory space, mentoring, pilot customers, joint ventures and private venture capital.

The paper, funded in part by EERE and released in May, also highlights how these services are leading to higher levels of success among their early stage companies. Current successes include:

- Collectively, Incubatenergy members have supported more than 350 companies.
- Companies supported by Incubatenergy members have collectively received more than \$1 billion in follow-on funding.
- Companies supported by Incubatenergy members have generated more than \$330 million in revenue.

- In addition, almost 3,000 people are directly employed by graduated firms.

The paper also highlights successes fostered by the network, including Chai Energy—one of the recent winners of a California Demand Response Auction Mechanism award for its innovative approach to increasing grid-edge flexibility. The company uses smart meter data and a simple mobile app to help customers manage energy use.

With incubator support, the company supported by LACI has swelled from two Caltech grads to nine full-time employees, helped thousands of customers statewide save money on their electric bills, and forged partnerships with multiple Fortune 500 companies.

Energy Secretary Ernest Moniz announced the launch of NIICE in 2014 along with plans to award \$3.2 million for a national network for the nation's clean energy startup community and the incubators that support them.

## SMALL BUSINESSES RECEIVE FUNDING FOCUSED ON CLEAN ENERGY INNOVATIONS

Sixty-one projects led by small businesses from 25 states will receive more than \$9 million from EERE to further develop clean energy technologies that have strong potential for commercialization and job creation. The projects range from integrating an electric generator with a turbine and water conduit made from 3-D printed components, to researching catalysts for ammonia production that could dramatically increase efficiency and lower emissions for chemical production. The [Small Business Innovation Research](#) and [Small Business Technology Transfer](#) programs, which competitively awards grants twice a year to thousands of small businesses for the development and commercialization of new ideas and innovative research, is funding these projects.

## JUMP-ing to Energy-Efficient Building Solutions



Karma Sawyer-  
Building Technologies Office

EERE is taking a leap forward in changing the way the clean energy innovation cycle works through its [JUMP](#) initiative—an online crowdsourcing platform that connects entrepreneurs with the national laboratories and its most influential industry partners.

“This really gets people thinking in ways we haven’t before,” said Karma Sawyer, the technology analysis and commercialization manager for the [Building Technologies Office](#) (BTO).

JUMP recently announced three “innovation call” winners in May during the 11th annual [Bay Area Maker Faire](#) in San Mateo, California. Industry sponsors gave out cash prizes for their concepts on HVAC sensors, water heaters, and defrost systems—potentially pushing these innovative ideas into the marketplace.

“People are really anxious to solve problems,” said Sawyer.” JUMP gives any entrepreneur out there a platform to get their ideas on market-facing challenges straight to the people that can actually commercialize them.”

With many ideas dying off during the innovation cycle due to lack of funding, resources, and market buy-in, BTO-supported JUMP gives entrepreneurs a fighting chance. The office works with the labs and their industry partners such as General Electric, A.O. Smith, and Building Robotics to identify the technology challenges they’re facing in energy efficiency. They then use the JUMP platform to challenge the American public to help solve their problems.

“It’s important to get people thinking about the way we solve problems,” said Sawyer. “We are opening it up to everyone so we don’t limit our opportunity space.”

After a campaign is selected, a technical review panel judges the concepts and awards a winner for future consideration to collaborate on a project. It’s a win for all involved; industry gets their problems solved, the labs showcase their capabilities, and the entrepreneurs are able to get their ideas out there.

JUMP launched in September of 2015 and has grown to five participating labs: [Argonne National Laboratory](#), [Lawrence Berkeley National Laboratory](#), [National Renewable Energy Laboratory](#), [Pacific Northwest National Laboratory](#), and [Oak Ridge National Laboratory](#).

Sawyer sees the potential for even broader applications of crowdsourcing to include outreach on business models and marketing campaigns.

### RACE TO ZERO

Prairie View A&M took home top honors in the 2016 U.S. Department of Energy [Race to Zero Student Design Competition](#). Thirty-one teams from 25 colleges competed in designing cost-effective, zero energy homes for mainstream builders. Prairie View A&M’s design applied passive housing methodologies for the hot and humid climate of Houston, Texas that was also affordable for the historically significant, low-income Independence Heights neighborhood. As part of the Energy Department’s [Building America](#) and [Zero Energy Ready Home](#) programs, the competition gives future architects, engineers, construction managers, and entrepreneurs the skills needed to start careers in clean energy and generate creative solutions to real-world problems.



**Energy Saved:**  
**160 trillion Btus**



**Dollars Saved:**  
**\$1.3 billion**



**Avoided carbon emissions:**  
**10 million ton**



**Water Saved:**  
**2.1 billion gals**

## Better Buildings Challenge Partners Create Huge Savings

The numbers are in for the [Better Buildings Challenge](#). Partners topped more than \$1 billion in energy cost savings, cut carbon emissions by 10 million tons, and saved 2.3 billion gallons of water since the initiative began in 2011. The results were announced in May at the Better Buildings Summit in Washington, D.C. by Energy and Housing Secretaries Ernest Moniz and Julian Castro. The secretaries highlighted the overall growth, reach, and influence of the Better Buildings Challenge.

There are now 310 partners working to achieve portfolio-wide goals of at least 20% energy reduction within 10 years. Together, they are making efficiency improvements in 34,000 buildings and facilities, representing 4.2 billion square feet and \$5.5 billion in energy efficiency investments.

The partners were able to meet their energy, water, and financing goals through a combination of innovative solutions and proven strategies that are openly exchanged through the [Better Buildings Solution Center](#). The online tool hosts more than

100 implementation models, 150 showcase projects, and hundreds of supporting case studies, fact sheets, presentations, and webinars.

In addition, EERE launched three new accelerator programs, announcing partnerships with 60 organizations, to create secure energy for residents and businesses.

### Clean Energy for Low-Income Communities Accelerator

Deploys clean energy in low-income communities through expanded installation of energy efficiency and distributed renewables, lowering utility bills for residents.

### Combined Heat and Power for Resiliency Accelerator

Supports and expands the consideration of combined heat and power technologies for improved efficiency and enhanced resiliency.

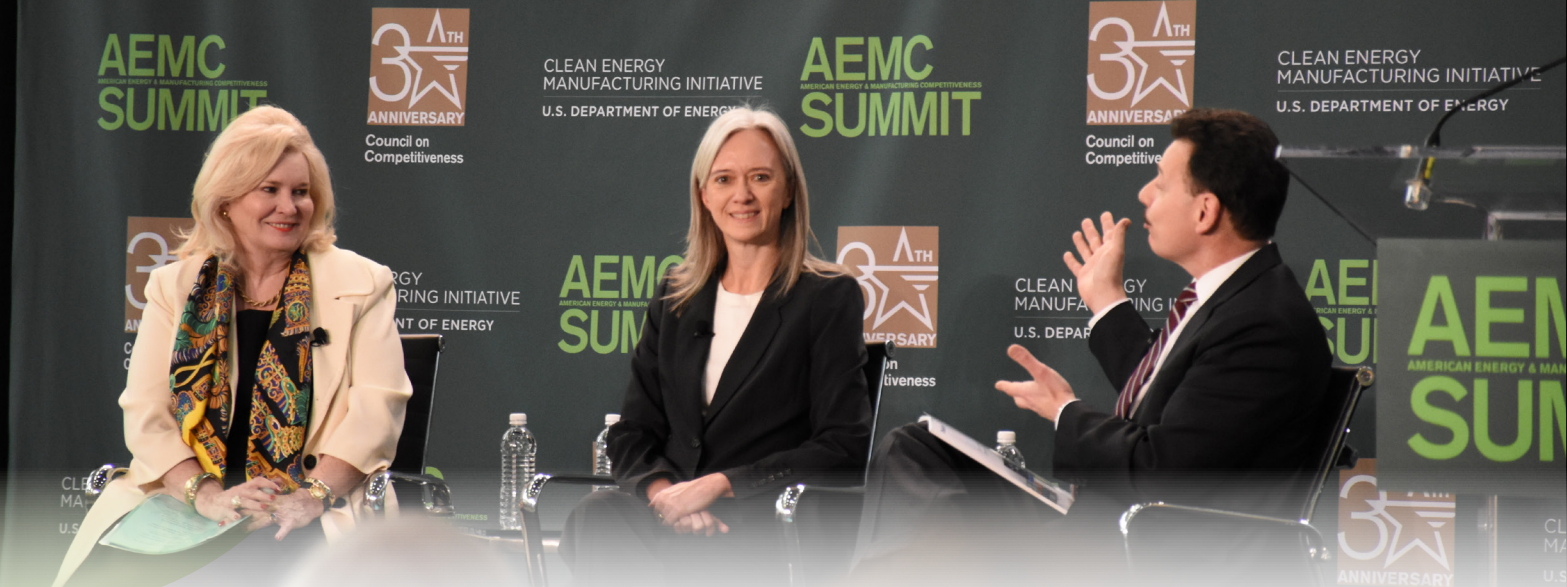
### Wastewater Infrastructure Accelerator

Improves energy efficiency of participating water resource recovery facilities by at least 30% and integrates at least one resource recovery measure.

Through Better Buildings, EERE aims to make commercial, public, industrial, and residential buildings 20% more efficient over the next decade—saving billions of dollars on energy bills, reducing greenhouse gas emissions, and creating thousands of jobs.



Atlanta Mayor Kasim Reed presented on the progress his city has made passing the 100 million square feet milestone in the Better Buildings Challenge. Since joining Better Buildings, Atlanta has reduced its energy consumption by 11% and met its 20% goal in water usage reduction. - Photo by Bob Burgess



# AEMC Summit Spotlights Clean Energy Partnerships, Innovation

Many of the nation’s top manufacturing experts were in Upper Manhattan in early May celebrating the annual Northeast Regional American Energy and Manufacturing Competitiveness Summit at the City College of New York. The summit, in partnership with the Council on Competitiveness, spotlighted the role EERE’s [Clean Energy Manufacturing Initiative](#) (CEMI) has played in boosting U.S. manufacturing competitiveness.

Joined by leadership from the Council, Eastman Kodak, 1366 Technologies, Deloitte, Lockheed Martin, Deere & Company, the Office of the Governor of New York, and the [National Renewable Energy Laboratory](#), former EERE Assistant Secretary Dave Danielson highlighted the nearly \$1 billion that the Energy Department has invested over the last four years in the manufacturing of clean energy technologies and energy efficiency in manufacturing.

Since CEMI’s start in 2013, the Energy Department has established innovative public-private partnership models between its national labs, higher education institutions, and large

and small companies to work together on technology issues relevant to clean energy manufacturing.

At the summit, Danielson also announced the launch of the [Manufacturing Innovation through Energy and Commerce](#) pilot. This effort affords manufacturers in four states the opportunities to leverage tools and technological expertise, as well as the research capabilities of the nation’s national laboratories, while gaining access to technical assistance and business development resources from the U.S. Department of Commerce’s Hollings Manufacturing Extension Partnership (MEP) at the National Institute of Standards and Technology.

Partnership participants in Georgia, Michigan, Ohio, and Virginia will make connections with leaders at the labs and the MEP centers, and learn about the resources and funding opportunities at the participating labs.

Following the summit, the City of New York Energy Institute and Grove School of Engineering hosted a half day conference with members of EERE to discuss career opportunities and resources available through

EERE to enhance energy efficient manufacturing, bring clean energy technologies to market and push toward a low carbon future.

## NEW LAB ACCELERATOR PROGRAM LAUNCHED

EERE released its next Lab-Embedded Entrepreneurship Program—[Chain Reaction Innovations](#). The new accelerator provides innovators mentorship and access to [Argonne National Laboratory](#) researchers and resources. Participants will also receive assistance with developing business strategies, conducting market research, and finding long-term financing and commercial partners. The program is modeled after the [Cyclotron Road](#) pilot at [Lawrence Berkeley National Laboratory](#), which attracted \$5 million in private sector follow-on funding for its first cohort. Chain Reaction Innovations is sponsored by the [Advanced Manufacturing Office](#) and managed in collaboration with the [Technology-to-Market](#) program.

# Fourth Innovation Institute Announced

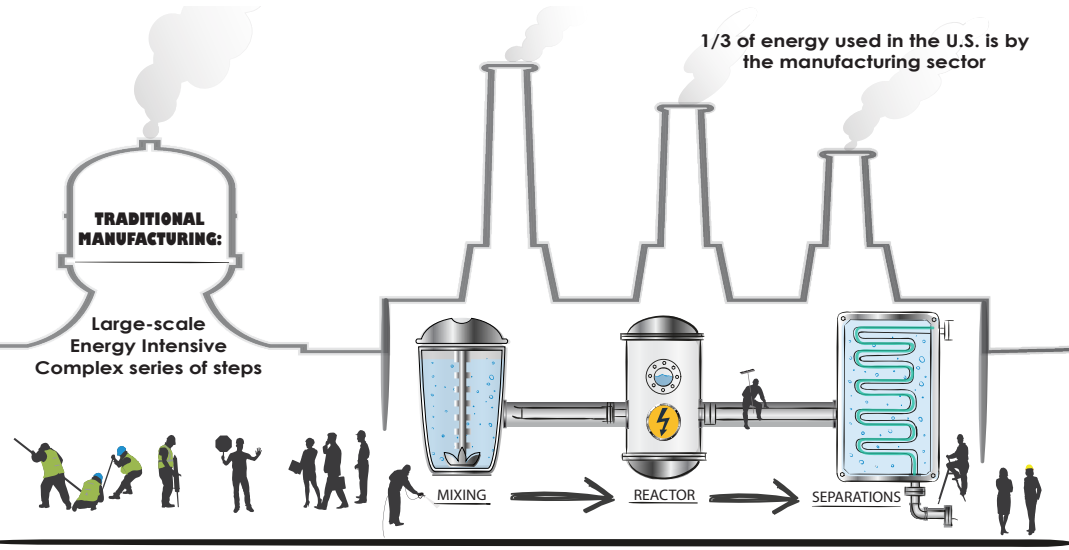
In a continued effort to accelerate innovation and U.S. competitiveness in manufacturing, the [Advanced Manufacturing Office](#) announced a \$70 million funding opportunity to develop a new innovation institute focused on modular chemical process intensification.

This area of focus is an emerging opportunity for a variety of U.S. energy-intensive industries, including ethylene for plastics and biofuels used in sustainable transportation. While traditional chemical manufacturing relies on large-scale processing, the Modular Chemical Process Intensification Institute will support research and development efforts to merge and integrate multiple, complex processes such as mixing, reaction, and separation into a single step—yielding higher efficiency, increased scalability, and improved productivity levels. It is also expected to cut operational costs and reduce waste.

The new institute will be the fourth EERE-funded institute within President Obama’s [National Network for Manufacturing Innovation](#) (NNMI). Each NNMI facility is a public-private partnership that serves as a regional hub to bridge the gap between applied research and product development. They bring together companies, academic institutions, industrial research organizations, and the national labs to invest in key technology areas that encourage investment and production in the United States.

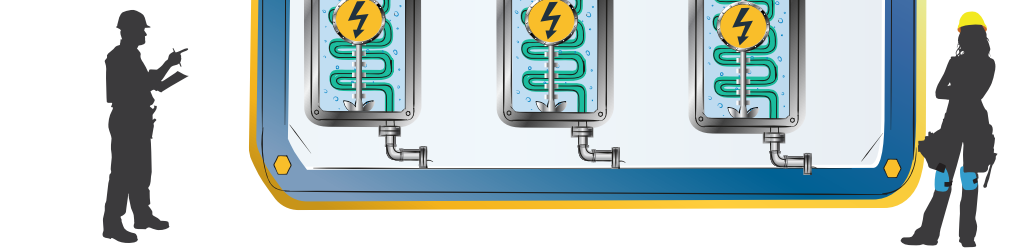
Through the [Clean Energy Manufacturing Initiative](#), EERE has already established two innovation institutes in the areas of power electronics and advanced composites, and President Obama recently announced its Smart Manufacturing Innovation Institute will be headquartered in Los Angeles, California—spurring advances in smart sensors and digital process controls to improve efficiency of U.S. advanced manufacturing.

The president also announced a fifth institute that will be led by EERE’s Advanced Manufacturing Office. The proposed facility will focus on lowering energy consumption and carbon emissions through the development of innovative recycling and remanufacturing technologies.



## PROCESS INTENSIFICATION:

Combined steps  
Modular  
Agile  
Flexible  
‘Plug & Play’  
Productive  
Efficient



## BENEFITS:

- ↑ ENERGY PRODUCTIVITY & EFFICIENCY
- ↓ CAPITAL & OPERATING COST
- ↑ QUALITY & WASTE REDUCTION
- ↑ PROCESS SAFETY

## Supporting Energy Efficiency Efforts in Alaska

EERE is committed to providing assistance for states to develop high-impact, clean energy programs to reduce energy costs and consumption. Thanks to financial and technical assistance from the office, many remote communities and Alaska Native villages are finding new ways to stay warm and save money despite the state's harsh climate and power distribution challenges.

Strategic investments by the [State Energy Program](#) (SEP) and [Weatherization Assistance Program](#) (WAP) are supporting new energy efficiency activities, including planning and development for rural communities with high energy costs, and improvements in multi-family homes.

SEP provides financial assistance through two funding mechanisms: formula grants and [competitive awards](#). Through these financial opportunities, SEP invested more than \$900,000 in Alaska through its state energy office (Alaska Energy Authority) in 2015 and 2016.

Last year, Alaska Energy Authority

partnered with the Alaska Housing Finance Corporation and the Alaska Native Tribal Health Consortium to invest \$300,000 in SEP competitive funds to [kick-start energy efficiency development](#) in public facilities located in under-served, rural communities. This funding is expected to help leverage Alaska's existing financing offerings for public buildings, some of which were developed under the American Recovery and Reinvestment Act. The state estimates that the two-year award will result in an aggregate annual savings of 17 billion British thermal units (Btu) and \$500,000 in annual energy cost savings.

In 2015 and 2016, WAP invested more than \$3.2 million in formula grants to support weatherization in the state of Alaska. Alaska's weatherization network of service providers are working to improve the condition of the state's affordable housing stock, while reducing utility bills for low-income Alaskans and improving the health of their homes. One weatherization service provider in the

state, the Alaska Community Development Corporation, implemented an Enhanced Weatherization Program to provide housing upgrades through extensive repairs, heating and electrical improvements, and [energy conservation measures](#) in Alaska's Lake and Peninsula Borough.

Households in these rural communities face increased energy and transportation costs for goods and services. They are also particularly vulnerable to the direct impacts of climate change. The Enhanced Weatherization Program helps supplement the state budget for retrofits and allows service providers to completely rehabilitate existing structures to dramatically improve the resiliency of rural housing stock and to increase the comfort of its occupants.

With EERE investment and support, state energy offices and state-led weatherization networks across the nation are setting a standard for energy efficiency and renewable energy deployment and best practices, while also improving the lives of Americans every day.

### RACEE COMPETITION

The third and final phase of the \$4 million Remote Alaska Communities Energy Efficiency Competition kicked off with the release of a funding opportunity announcement in early June. In the first two phases of the competition, remote communities and Native Alaska villages were asked to pledge to reduce per capita energy use 15% by 2020 and apply for technical assistance expertise to reach their goal. Sixty-four communities pledged and were designated as Community Efficiency Champions, and 13 were selected for technical assistance. This fall, up to five communities will be selected to receive funding for implementation.

## New Test Tool for Optimizing Renewable Energy at Federal Agencies

EERE's [Federal Energy Management Program](#) (FEMP) teamed up with the [National Renewable Energy Laboratory](#) to develop a tool used to help federal agencies identify cost-effective renewable energy technology opportunities and meet the 30% renewable energy target by 2025.

Known as the [Renewable Energy Optimization](#) (REopt) tool, this new energy planning platform identifies energy opportunities at a single site or across a portfolio of sites to meet agencies' specific goals. REopt assists users by evaluating a range of renewable energy technologies, including solar, wind, biomass, landfill gas, and ground source heat pumps, along with conventional generation,

energy storage, and energy conservation measures.

REopt recommends specific technologies, their size, and dispatch strategy, and it calculates costs of installation, operation, and maintenance, as well as associated life-cycle cost for the recommended combination of technologies.

"REopt has the capability of providing a more detailed analysis such as microgrid, energy storage, and resiliency planning, which assists agencies through the entire project development process and answers intricate questions on how to operate multiple technologies," said Rachel Shepherd, FEMP's renewable energy program manager.

FEMP has partnered with 17 federal agencies to date. By identifying and prioritizing cost-effective and technically viable opportunities, the platform offers valuable analysis leading to renewable energy development and deployment across the federal government.

FEMP plays a critical role in leading by example by reducing energy use and increasing the use of renewable energy at federal agencies. With more than 300,000 buildings across the federal government, FEMP's efforts to advance the deployment of renewable and energy efficient technologies continue to make a significant contribution to national energy and environmental goals.

### 2016 EE GLOBAL FORUM

Key members of EERE leadership participated in the Energy Efficiency Global Forum in May. Deputy Assistant Secretaries Kathleen Hogan and Reuben Sarkar, along with Advanced Manufacturing Office Deputy Director Rob Ivester spoke on a variety of topics, including smart technologies in energy efficiency, transportation, and the Energy-Water Nexus. The annual two-day event brought together thought leaders from around the world to Washington, D.C. to discuss the latest technologies, develop best practices and strategies, and integrate policies and business practices into actionable plans for the next generation of energy efficiency.



Kathleen Hogan- Deputy Assistant Secretary for Energy Efficiency

## Algae Turf Scrubbers Providing Double Benefits

Algae absorb nutrients and produce oxygen—ecosystem services that are vital to the health of impaired water bodies like the Chesapeake Bay and Gulf of Mexico. Energy Department-funded researchers are investigating how to mimic these natural services, while sustainably producing biomass for conversion to renewable biofuels and bioproducts—a double win for the environment!

Researchers have developed algal flowways, or “Algal Turf Scrubbers®,” to manage nutrient loading and improve fresh water, estuarine, and marine communities. In these systems, filamentous algae (long, threadlike structures) are strategically installed near stormwater or wastewater runoff sites; they are then periodically harvested with mechanical farm equipment, similar to conventional agriculture practices.

The Chesapeake Bay Program recently recommended the use of algal flow-way technologies as a novel best management practice (BMP) for reducing nutrients (such as phosphorous and nitrogen) and sediments, and the [Maryland Port Administration’s installation of an Algal Turf Scrubber](#) was named Most Innovative in the “Best Urban BMP in the Bay Area” Awards by the Chesapeake Stormwater Network.

The [Bioenergy Technologies Office](#) is funding [Sandia National Laboratories](#), in partnership with Ecological Systems Technology Corporation and HydroMentia, to develop Algal Turf Scrubbers for the production of biofuels. The highly productive, easily harvested, and dewatered turf algae is a promising source of reliable biomass for processing to bio-crude oil that can then be converted to renewable diesel, gasoline, or jet fuels. The Sandia team is working to maximize biomass fuel yield, while improving the logistics and economics of scaling the system to commercial production. The team is currently tackling challenges that include characteristically low lipid content, as well as high nitrogen and ash content that impact downstream processing.

*Photos by Mark Zivojnovich/  
HydroMentia*

### AND THE WINNERS ARE...

Students (Pictured left) from Montgomery Blair High School (Silver Spring, MD) and Joaquin Miller Middle School (San Jose, CA) won the 2016 U.S. Department of Energy National Science Bowl®. The 26th annual event, held in Washington, D.C., is one of the nation’s largest science competitions. More than 9,000 high school students and 5,100 middle school students from all 50 U.S. states and territories participated in the May event, which encourages students to excel in math and science. Signups for next year’s competition begin in October. The National Science Bowl is managed by the Energy Department’s Office of Science. Photo by Dennis Brack, Office of Science

## Buckeyes Win EcoCAR Bragging Rights Yet Again

The Energy Department and General Motors named Ohio State University this year’s overall winner of the [EcoCAR 3](#) Year Two Advanced Vehicle Technology Competition during an awards ceremony in San Diego last month. The multiyear competition ends in 2018.

EcoCAR3 is the latest series in a four-year competition that challenges 16 North American university teams to redesign a 2016 Chevrolet Camaro to reduce its environmental impact, while maintaining the performance expected from the iconic American car. Ohio State took first place last

year and in the final year of EcoCAR 2, making this its third consecutive win. As this year’s overall winner, the team nets an extra \$10,000, the coveted Year Two trophy, and bragging rights heading into the third year of the competition. Virginia Tech and Embry-Riddle Aeronautical University snagged second and third place, respectively.

With four years to harness their ideas, the student teams have now developed and started to integrate their energy-efficient powertrains to maximize performance of the Camaro. In the remaining years of the competition,

teams will focus on integration refinement and market engagement.

The Ohio State team showed “all-around excellence” by successfully applying research in the past year of the vehicle development process for its Series Parallel PHEV 2016 Chevrolet Camaro, said Kristen Wahl, director of the Advanced Vehicle Technology Competitions at [Argonne National Laboratory](#). “Most impressively, the OSU team’s Camaro was the first to meet all safety protocols, even though they only took possession of the vehicle a few months ago,” she said.

## Embracing Hydrogen and Fuel Cell Technologies



*A hydrogen fueling station in San Francisco, CA. /  
Photo by California Fuel Cell Partnership*

San Francisco is the first [Climate Action Champion](#) to focus on hydrogen and fuel cell technologies for local transportation. Nearly \$4.75 million in funding from EERE’s [Fuel Cell Technologies Office](#) will be used for education and outreach programs to increase the deployment of fuel cell electric vehicles (FCEVs) and hydrogen infrastructure, in addition to providing detailed cost analysis for hydrogen systems, storage, production and delivery technologies.

With 14 new hydrogen fueling stations planned for deployment in the Bay Area within the next two years, high upfront costs and lack of consumer education are potential barriers to the widespread adoption of FCEVs. This project helps the local government conduct comprehensive training and educational workshops for hydrogen and fuel cell stakeholders in the area to address a range of permitting, code and communication challenges.

San Francisco aims to reduce its greenhouse gas emissions by 40% below 1990 levels by 2025 and help triple California’s zero emissions vehicles adoption goal of 15%. Climate Action Champions are communities recognized by the White House for their strong commitment to lowering greenhouse gas emissions and the fight against climate change.



## New Report Charts Path to SunShot's Solar Power Goals

The Solar Energy Technologies Office recently released its “[On the Path to SunShot](#)” series. The collection of eight reports details the progress the [SunShot Initiative](#) has made to date, as well as the challenges and opportunities that lie ahead in making solar cost competitive with traditional sources of energy by 2020.

The reports cover solar advancements in efficiency, reliability, performance, and costs since SunShot's inception in 2011. They also detail the emerging opportunities in solar manufacturing, financing, and dispatch, as well as the environmental and health benefits of solar. SunShot plans to use these findings to develop its goals beyond the end of the decade.

### Where We Are

More than halfway through the SunShot Initiative, solar deployment in the United States has increased tenfold, with more than [one million solar installations](#) nationwide. The levelized cost of solar has dropped by 65% since 2011, with installed photovoltaic (PV) system prices for residential, commercial, and utilities cut in half or more. The solar industry is now 70% of the way toward its 2020 target of reducing the levelized cost of solar energy to 6 cents per kilowatt-hour.

### Challenges

As more people choose to power their lives with solar energy, adding high levels into the energy mix poses some considerable challenges. If too much solar is fed into the electric grid, it's

possible that utility system operators would need to reduce PV output in order to maintain the crucial balance between electric supply and demand. As a result, PV's value and cost competitiveness would degrade. SunShot will work to avoid this scenario by increasing system flexibility through enhanced control of variable-generation resources, added energy storage, and motivating electricity consumers to shift consumption to lower-demand periods.

There is also room for improvement in the way rooftop solar generators are compensated for the energy sent back to the grid. The success of net energy metering has raised concerns about the potential for higher electricity rates, as well as cost-shifting to non-solar customers and reduced utility shareholder profitability. However, eliminating net energy metering nationwide would cut cumulative distributed PV deployment by 20% in 2050, so alternative reform strategies must be developed to address con-

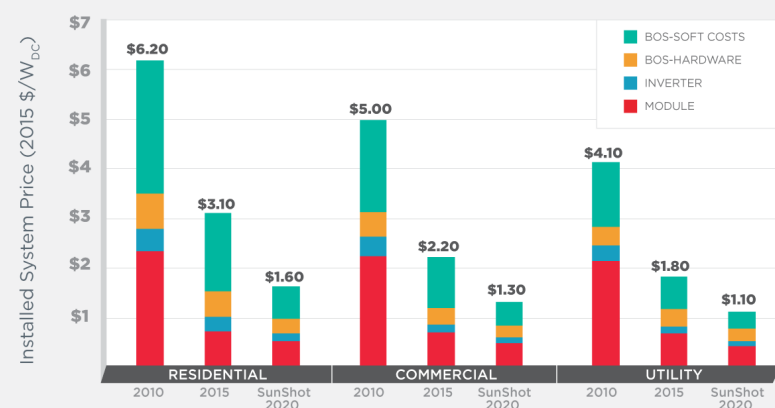
cerns about distributed PV compensation.

### Opportunities

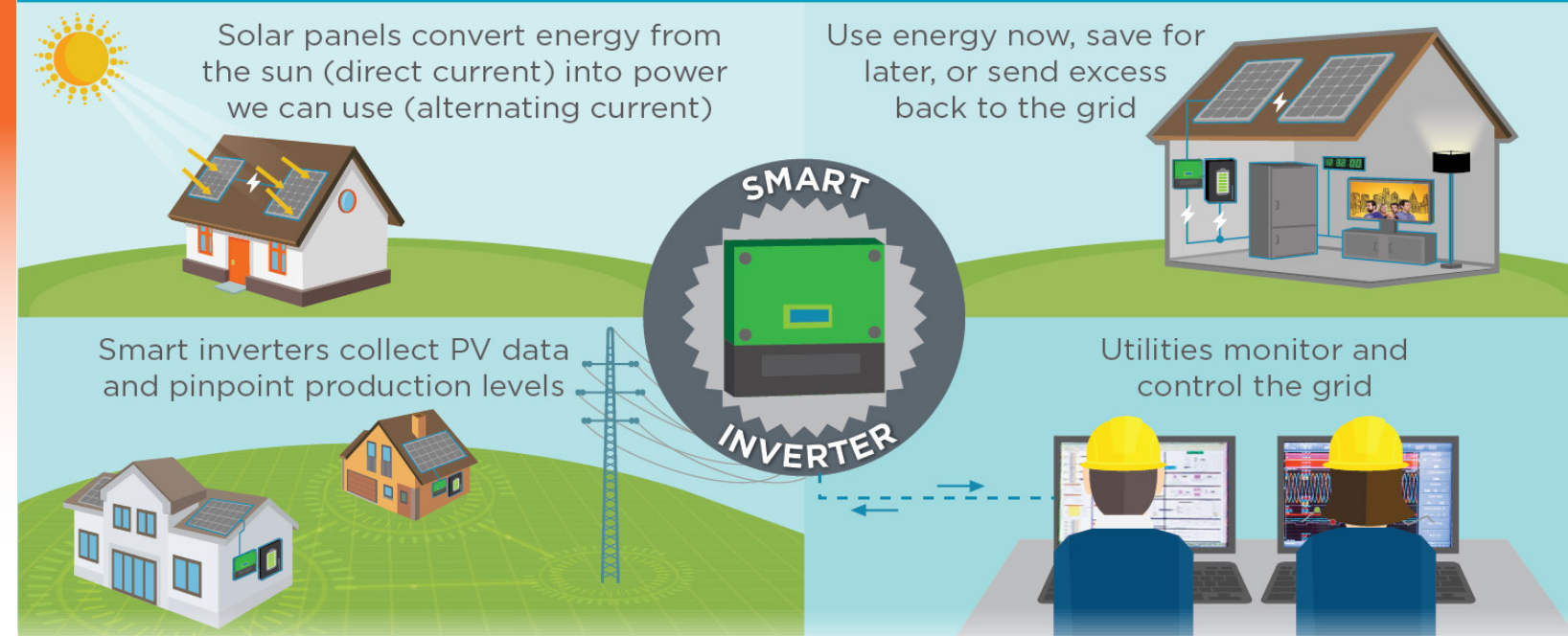
While further developments in PV and concentrating solar power (CSP) technologies are required to help reach the [SunShot 2020 goals](#), it is well within the realm of possibility. The United States is a global leader in PV and CSP research and development and patent production. The nation has also been rated one of the world's most competitive and innovative countries, as well as one of the best locations for PV manufacturing. These attributes will help as the United States develops technologies like lower-cost modules and enhanced thermal energy storage for CSP.

The solar industry is also on the path toward improving solar's integration into the grid. Further development of advanced inverters and voltage management solutions could double the electricity-distribution system's hosting capacity for distributed PV at

INSTALLED PV SYSTEM PRICES



## The Future of Solar Generation & Transmission: Smart Inverters



low costs. Enhanced thermal energy storage can increase the electricity system's ability to balance supply and demand, which is increasingly important as more variable-generation renewable energy is added to the system.

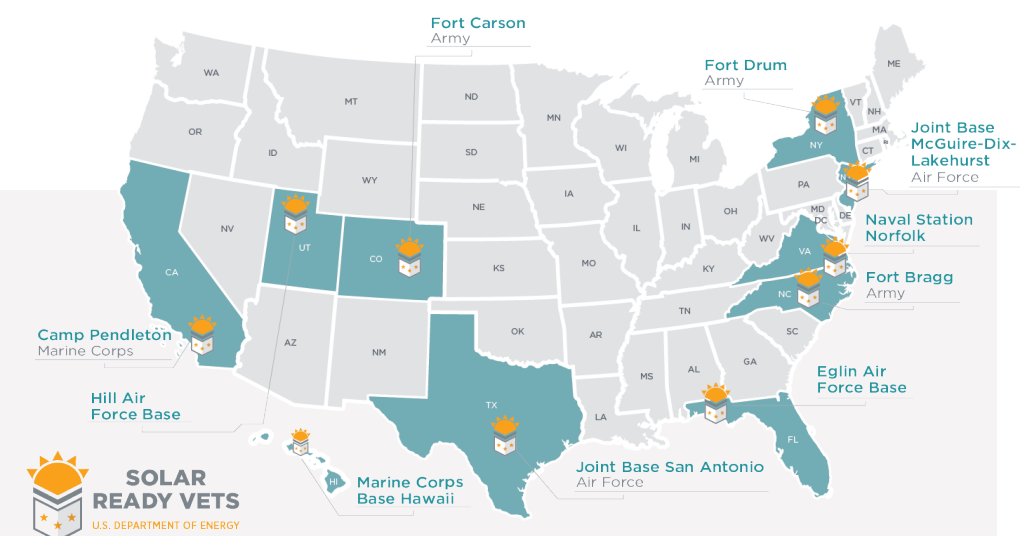
Further opportunity to lower the cost of installing a solar array lies in improving interconnection processes and their associated standards and codes. Additionally, financial innovations could cut the cost of solar energy to customers and businesses

by 30%–60%. Development of a larger, more mature U.S. solar industry will likely increase financial transparency and investor confidence, enabling simpler, lower-cost financing methods.

By reaching SunShot's 2020 targets, the solar industry will also produce

environmental and health benefits by reducing water consumption in 36 states and saving more than \$259 billion in global climate change damages. Reducing these pollutants will also prevent unnecessary health care costs and save more than 25,000 lives.

### Solar Ready Vets Program Locations



## Solar Ready Vets Expands

The Energy Department announced in May that five additional military bases will join the [Solar Ready Vets](#) program, which trained more than 150 military veterans and transitioning service members to enter the solar workforce last year. The program's expansion will allow it to train approximately 600 veterans in 2016.

New training locations include Eglin Air Force Base (Florida), Fort Bragg (Army; North Carolina), Joint Base McGuire-Dix-Lakehurst (Air Force, Army, Navy; New Jersey), Joint Base San Antonio (Air Force, Army; Texas), and Marine Corps Base Hawaii.

The five existing locations reside in California, Colorado, New York, Utah and Virginia.



## Energy Department Investments Lead to World's First Geothermal-Solar Hybrid Plant

The newly commissioned Stillwater power plant in Nevada is the world's first triple hybrid facility of its kind, combining geothermal, photovoltaic (PV), and solar thermal power generation. The plant, which began operating at the end of last year, includes a 33.1 megawatt (MW) geothermal plant, 26.4 MW solar PV plant, and a 2 MW solar thermal plant—enough to power 15,000 U.S. homes.

A ribbon-cutting ceremony took place

in March, featuring Italy's Prime Minister and Nevada's governor. The triple hybrid power plant, which is owned by Enel Green Power North America, Inc., worked with the [National Renewable Energy Laboratory](#) and [Idaho National Laboratory](#), who provided modeling and analysis support for the project.

This first-of-its-kind technology increases power generation during the middle of the day when electrical demand is typically at its highest and

uses solar heat to offset long-term decreases in geothermal resource performance. It also leverages geothermal heat to eliminate the necessity for thermal storage—a requirement by stand-alone concentrated solar power plants.

The PV element of the plant is expected to generate 40 gigawatt-hours annually and cut carbon dioxide emissions by more than 28,000 tons each year.



## New Hydropower Report to Provide Roadmap for Future

A new report set for release by the Energy Department will provide a vital roadmap to guide a new era of growth in domestic hydropower over the next half century.

The Hydropower Vision report, which EERE's [Water Power Program](#) plans to publish this summer, will examine the state of the hydropower industry, assess the costs and benefits to America stemming from additional hydropower, and address challenges to achieving higher levels of hydropower deployment within a sustainable energy mix.

A cornerstone of the U.S. electric grid, hydropower has provided low-cost, low-carbon, renewable, and flexible energy services for more than a century. At 79.6 gigawatts of installed hydropower generating capacity in 2015, U.S. officials are working to establish long-term scenarios for the responsible growth of hydropower generation capacity and energy production.

Energy Department officials consulted more than 150 organizations, including the National Hydropower Association, to create the comprehensive report. It features input from

300 contributors in the hydropower community—a diverse group that includes equipment manufacturers; environmental organizations; federal and state government agencies; utilities; developers; independent power producers; and research institutions, tribal agencies, and laboratories.

The aim of the report is to help develop a cohesive vision for the benefit of the U.S. hydropower community, explore industry growth scenarios, provide relevant information to stakeholders, and inform future decisions by policymakers.



### COLLEGIATE WIND COMPETITION WRAP-UP

The Pennsylvania State University earned top prize in the [U.S. Department of Energy Collegiate Wind Competition](#) (CWC) during the AWEA WINDPOWER Conference and Exhibition held in New Orleans. It's Penn State's second straight CWC victory. The May event featured 12 student teams from the United States and Puerto Rico who all built small-scale wind turbines that can provide off-grid power.

The University of Massachusetts Lowell and Boise State University finished in second and third place.

The Collegiate Wind Competition provides undergraduates real-world skills needed to enter the clean energy workforce by challenging them to develop and deliver a business plan, establish a deployment strategy, and build and test a wind turbine.

As the winner, Penn State's wind turbine will be displayed at the U.S. Department of Energy headquarters in Washington D.C.

# Office Round Ups

## EFFICIENCY

### Building Technologies Office

The Building Technologies Office announced \$14 million to increase the efficiency of U.S. homes and buildings. Through the Commercial Buildings Integration program, six selected projects will improve the efficiency of at least 2,600 buildings nationwide, creating nearly 500 jobs. Under its [Building America program](#), EERE will make eight awards for industry partners to develop highly efficient residential construction methods and integrated technologies that will lead to healthier, more comfortable homes, while saving homeowners money on their utility bills.



### Federal Energy Management Program

Director Timothy Unruh hosted a roundtable thought leadership discussion among senior agency officials in June. Topics focused on federal sustainability goals, policy, and initiatives that included integrated energy, water, and materials systems, energy savings performance contracts, and energy reductions through the use of intelligent technologies.

### Advanced Manufacturing Office

The Advanced Manufacturing Office launched the Combined Heat and Power (CHP) for Resiliency Accelerator in May as part of the Better Buildings Initiative. The goal is to expand the consideration of CHP and other distributed generation opportunities in resiliency planning at various levels within a community.

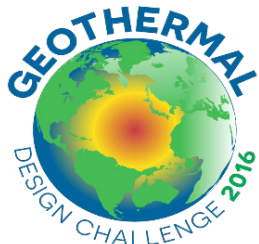
### Weatherization and Intergovernmental Program Office

The State Energy Program will announce selections for 2016 competitive awards this summer. Up to \$5.75 million will be awarded to as many as 27 state awardees for work that falls within three topic areas: state energy planning, innovative energy efficiency and renewable energy technologies, and technical assistance to advance formula-funded activities.

## RENEWABLE POWER

### Geothermal Technologies Office

Thirty teams remain in the Geothermal Design Challenge. High school and university teams are working with the Energy Department, Center for Advanced Energy Studies, and Idaho National Laboratory to research and develop their infographics on the theme: What is the future of geothermal energy, and how will it impact you?



### Solar Energy Technologies Office

The SunShot Initiative recently launched the Solar Training and Education for Professionals program, which tackles soft costs by addressing gaps in solar training and energy education. It will continue to support SunShot training programs, such as Solar Ready Vets, and it will provide educational outreach for professionals in related fields, such as real estate, finance, and insurance.

### Wind Power

The Wind Program announced that the Distributed Wind Energy Association has been selected as a partner to support the long-term sustainability for the Wind for Schools program. The selection is part of a broader effort by the department to support the growth of the Wind for Schools network to allow more schools nationwide to participate in the program.



### Water Power

At the conclusion of the Waterpower Week conference, the Water Program hosted more than 40 members of the marine and hydrokinetic (MHK) community for a public meeting with program leadership. Industry leaders provided input on the MHK program strategy, which looks ahead through the next 20 years as EERE works to achieve U.S. commercialization for marine energy devices.



U.S. Navy Carter Rock Facility

## SUSTAINABLE TRANSPORTATION

### Vehicle Technologies Office

EERE and the Transportation Department (DOT) recently announced a collaboration to learn more about innovative smart transportation systems and alternative fuel technologies. EERE will support DOT's Smart City Challenge by offering tools, modeling capabilities, and access to national lab technologies.



### Bioenergy Technologies Office

The Bioenergy Technologies Office announced up to \$90 million in project funding focused on designing, constructing, and operating integrated biorefinery facilities. The funding is meant to assist in the construction of bioenergy infrastructure to integrate cutting-edge pretreatment, process, and convergence technologies.

### Fuel Cell Technologies Office

This mock Hydrogen fuel dispenser is on display at the Energy Department. It's being used as an outreach tool to educate people about the new station opening up in Washington, D.C. later this summer and was also displayed for press during the Fuel Cell Technologies Office's annual merit review week.



## STRATEGIC PROGRAMS

### Technology-to-Market

At the end of the Waterpower Week conference, Wave Energy Prize teams toured the U.S. Navy's Carderock facility and got their first glimpse at the 12-million gallon MASK Basin, where they will conduct final testing on their devices. Teams will continue to build and perfect their scale-model wave energy devices prior to shipping them to the Carderock facility in mid-July. Final testing is scheduled to begin the first week of August.

### EERE International

Geothermal Technologies Office (GTO) staff, along with National Renewable Energy Laboratory staff, traveled to Nairobi and Naivasha, Kenya, where they met with Kenyan geothermal experts to identify potential areas of collaboration under the scope of Power Africa. GTO and EERE International coordinated with USAID and the U.S. Energy Association-East African Energy Partnership to develop a comprehensive plan to identify Kenya's geothermal needs and capabilities.



Kenya's Olkaria geothermal field - photo by Shane Harper



Energy Efficiency &  
Renewable Energy

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